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UNPUBLISHED PRELIMINARY DATA

Departments of Chemistry and Earth Sciences

Revelle College

University of California, San Diego

La Jolla, California

To the National Aeronautics and Space Administration

1st Semi-Annual progress report on research
carried out under N.A.S.A. Grant NsG-701.

For the period July 1, 1964 to December 31, 1964

FACILITY FORM 602	N 65-83194	
	(ACCESSION NUMBER)	(THRU)
	3	<i>None</i>
	(PAGES)	(CODE)
	OR 5-7599	
	(NASA CR OR TMX OR AD NUMBER)	(CATEGORY)

During the period July 1, 1964 to December 31, 1964 the following work was done:

1. Rb-Sr ages of a number of carbonaceous chondrites have been determined. An accurate isochron age of $\sim 4.5 - 4.6$ AE was obtained for this group indicating that there are no significant age differences between this group and the ordinary chondrites and achondrites. Several individual chondrules from the Peace River meteorite as well as the total meteorite have also been analyzed for the first time. This data is now being readied for publication. Preprints will be sent as soon as available.
2. Chemical and mass spectrometric procedures have been developed to isolate simultaneously from a given sample the following elements: Cr, V, Ti, Ca, Mg and the alkali elements, K, and Rb. Several of these are being studied for possible spallation effects in the early nuclear history of meteorites. Emphasis has been on Cr, V, and K, and samples as small as 0.25 grams can be studied this way. This work is in progress.
3. The abundance of Zr and its isotopic composition in meteorites is of particular significance with reference to existing theories of nucleosynthesis and abundances of elements. The absolute abundances of Zr and Sr and the ratio of these strongly lithophyte elements are being determined by isotope dilution method. Microchemical techniques have been developed to isolate these elements from a given sample. About 20 meteorites from various classes are being studied and this work is in progress.

4. We are experimenting with various techniques to accurately determine the isotopic composition of Mg. This is concerned with the problem of determining the extinct radioactivity of Al^{26} , described in the proposal.

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